High Sierra Electronics

Model 4500 ALERT/IFLOWS VHF Data Receiver
Instruction Manual 60-4500-01(A)

TABLE OF CONTENTS

1.0 Introduction 1
1.1 General Description: 1
1.2 Receiving, Inspection and Unpacking: 1
1.3 Specifications: 2
2.0 Installation 2
3.0 Operation 3
4.0 Radio 3
4.1 Frequencies available 3
5.0 Maintenance 4
5.0 Troubleshooting 4
6.0 Returns 5
7.0 Warranty 5
8.0 Appendix 6
8.1 06-4500-04 Receiver wiring 6
8.2 61-4500-82 Maxon Radio user adjustments 7
8.3 61-12209 Receiver Decoder Interconnect: 8

1.0 INTRODUCTION

1.1 General Description:

The Model 4500 ALERT/IFLOWS VHF Data Receiver receives an incoming RF signal from field transmitters and repeaters then converts this signal to an audio tone that is then sent to a *High Sierra Electronics* Model 1000 ALERT/IFLOWS Data Decoder. The Model 4500 ALERT/IFLOWS VHF Data Receiver is fully automatic requiring no manual intervention. The receive frequency is set at High Sierra Electronics to customer specifications. See section 4.1 for factory default selections. Other frequencies are available on request.

1.2 Receiving, Inspection and Unpacking:

Many *High Sierra Electronics* products are scientific instruments. Exercise care during unpacking and installation. Remove the contents of the package carefully and compare the contents with the enclosed packing list. Should any items be missing, notify *High Sierra Electronics* Customer Service. Please have your packing list available when you call.

If any of the items are received in damaged condition, immediately notify the carrier and request an inspection. You must notify the carrier within 15 days of shipment. If a claim is not made within that time period, then the carrier will not acknowledge any claim for the lost or damaged goods.

1.3 Specifications:

Receiver	
Input:	RF, VHF or UHF (Customer specified)
Frequency Range:	VHF 135 - 174MHz; UHF 406 - 470MHz
Output:	700 mV_{p-p} audio signal
Connector:	1/8 Stereo phone jack
Voltage:	~12 VDC
Current:	~50 mA
Squelch:	Open: -112 dBm, Close: -114 dBm
Impedence:	600 Ohm
Temp. Range:	-30 to +60° C
Size:	8 1/4" wide x 2" high x 7" deep
Weight:	2 Pounds
Float Charger	
Input:	110 VAC 60Hz, 0.11A
Output:	13.7 VDC @ 0.3A
Size:	2.2" x 1.88" x 1.94"
Weight:	0.5 Pounds

2.0 INSTALLATION

The Model 4500 ALERT/IFLOWS VHF Data Receiver is shipped complete, no additional items are required for installation. The Model 4500 should be located near the antenna mounting structure so as to minimize losses in the antenna transmission line and it must be installed in a dry location, protected from inclement weather.

A cable from the jack marked "AUDIO OUT" on the rear of the chassis connects to the "AUDIO IN" on the Model 1000 Decoder. The audio cable connection to the decoder may be up to 1000 feet in length. Audio cable in excess of 100 feet should be shielded with tip, ring and shield connections to a 1/8 inch stereo plug (twisted pair phone wire may also be used).

The antenna connects to the Model 4500 via a BNC type connector on the rear of the chassis.

A wall mount float charger and connecting cable is supplied to power the receiver. Attach this cable to the terminal strip marked 12 VDC IN. Connect the red wire **+** spade lug to the left terminal marked "+", and the black wire **-** spade lug to the right terminal marked "-". In addition, a cable to connect an external gel cell battery is supplied if an uninterruptible power source is desired. If a gel cell battery is used, the

float charger will keep the battery charged. **NOTE: it is important not to reverse polarity when connecting power to the Model 4500 Receiver.**

In areas subject to electrical storms it is advisable to use a lightning protection device in the antenna transmission cable to protect the receiver from damage due to "near hits". During periods of electrical activity the receiver may present a shock hazard should the antenna be struck by lightning. During these periods it is recommended that personnel stay clear of the receiver and associated equipment to reduce the chance of injury due to this hazard.

3.0 OPERATION

The Model 4500 receives frequency modulated RF signals from remote transmitters and repeaters. These signals are then amplified, demodulated and the resultant audio signal is sent to the decoder. The audio signal consists of tones having a frequency of either 2133 Hz or 1920 Hz.

The Green LED on the front panel indicates if power is being supplied to the receiver and should always be on.

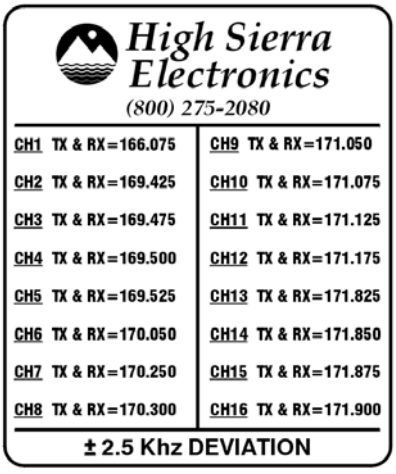
The speaker On-Off switch on the front panel of the Model 4500 allows audio monitoring of the received signals.

4.0 RADIO

4.1 Frequencies available

If the systems operating frequency is specified, then the radio is preset at the factory with the selected channel highlighted on the cover. To change or select a frequency, remove the four screws that secure the transceiver cover. Using the channel selection guide on the inside of the receiver cover, set the 4-position dip switch to the required frequency.

Frequency between 148.000 and 174.000 MHz can be programmed into these radios. The 16-channels factory defaults are commonly used frequencies. UHF frequencies between 406 - 470MHz are available on request.



5.0 MAINTENANCE

The Model 4500 ALERT/IFLOWS VHF Data Receiver is a maintenance-free unit. However if an external battery is used then it should be periodically tested with a battery charger-discharger similar to the *High Sierra Electronics* Model 5605.

5.0 TROUBLESHOOTING

The majority of failures are due to faulty connections. Check that all connections make a secure termination and are free of corrosion. Verify that the frequency switches are set to the proper frequency. Verify that 12 VDC is present at the terminal strip.

If the receiver will be used with a *High Sierra Electronics* Model 1000 decoder, the decoder may not function properly if the receiver remains unsquelched between transmissions. With the speaker switch turned on, there should be minimal RF noise between received transmissions. If the receiver is located in an environment high in RF noise, the squelch setting may need to be adjusted. The squelch has been factory adjusted and should not be changed without first consulting *High Sierra Electronics* (In addition to an IFR, the Model 4500 Receiver radio requires a Model 3200-22 Programming kit to adjust the squelch).

The audio signal present at the decoder end of the audio should be 700 mV_{p-p}. If there is a long cable run between the receiver and the decoder, the audio level may need an adjustment from the factory setting. Audio level may be adjusted to 700 mV_{p-p} while monitoring receiver output with an oscilloscope (see appendix 8.3).

For technical assistance with this product, consult *High Sierra Electronics* technical personnel. Phone: 1-800-275 2080 or FAX: 1-530-273-2089 between 8:00 AM and 5:00 PM Pacific Coast time, Monday thru Friday. E-mail questions or comments to: info@highsierraelectonics.com.

6.0 RETURNS

If you need to return this product for any reason, call *High Sierra Electronics* at (530) 273-2080 between 8:00 a.m. and 4:00 p.m. Pacific Coast time. Ask for a return Authorization Number (RA#) to be assigned to your unit. Carefully pack the unit so that it will not be further damaged in shipment. Write the RA# on the outside of the box and on any paperwork enclosed with the unit. Please include a written description of the problem and any unique conditions that occurred when the unit failed.

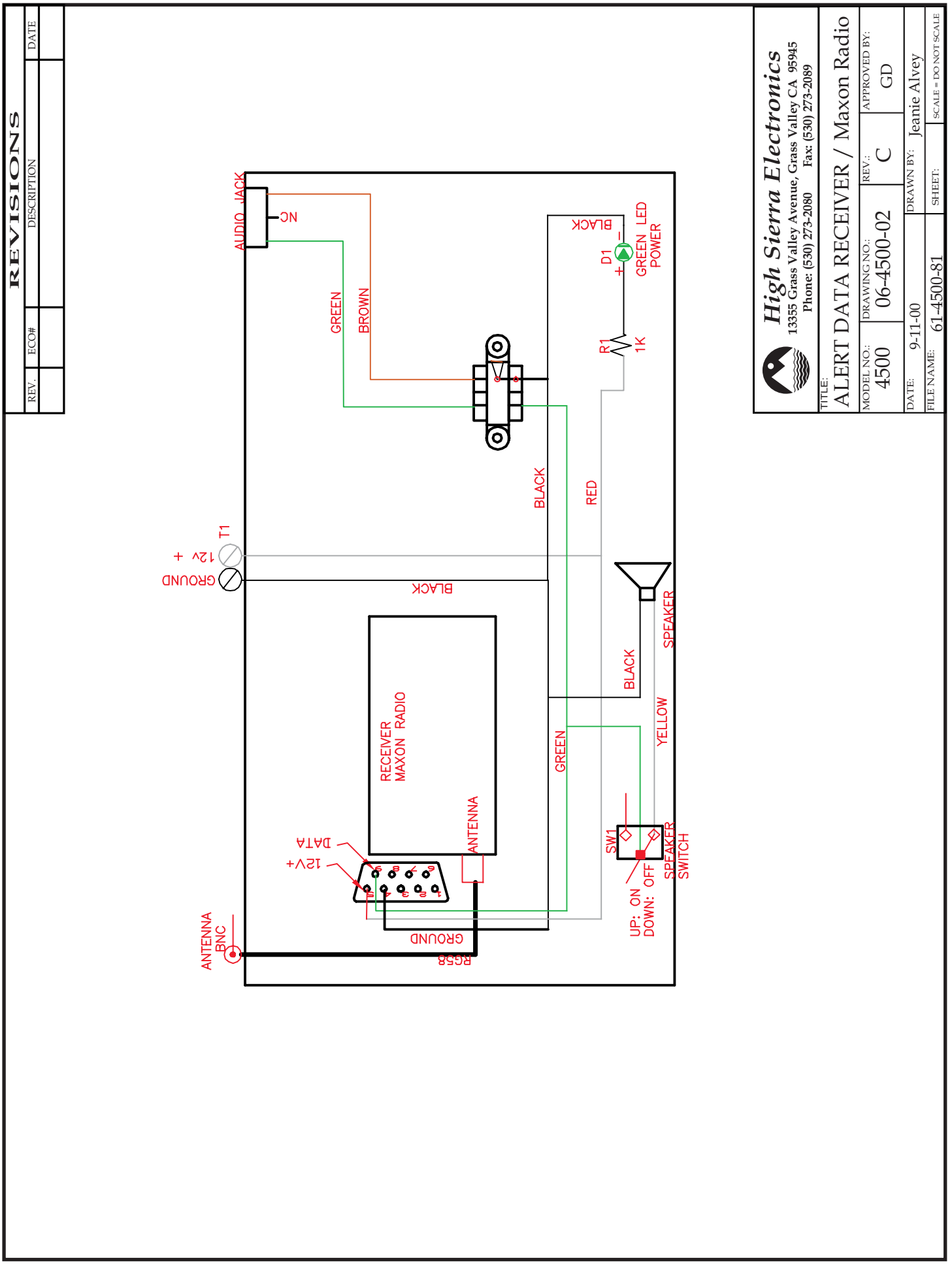
7.0 WARRANTY

All *High Sierra Electronics*' manufactured products are warranted against defects in materials and workmanship for a period of three (3) years from the date of shipment. If the equipment fails due to such defects, *High Sierra Electronics* will, as its option, repair or provide a replacement for the defective part or product. In no case will *High Sierra Electronics* be liable for more than the original purchase price.

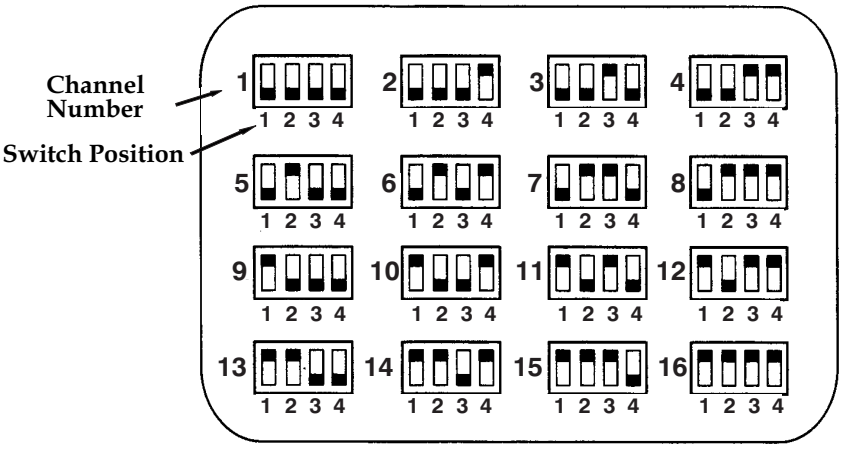
Equipment supplied by *High Sierra Electronics* and manufactured by others, carries the respective manufacturer's warranty. *High Sierra Electronics* assumes no warranty obligation, either express or implied, for equipment manufactured by others and supplied by *High Sierra Electronics*.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH IS EXPRESSLY DISCLAIMED.

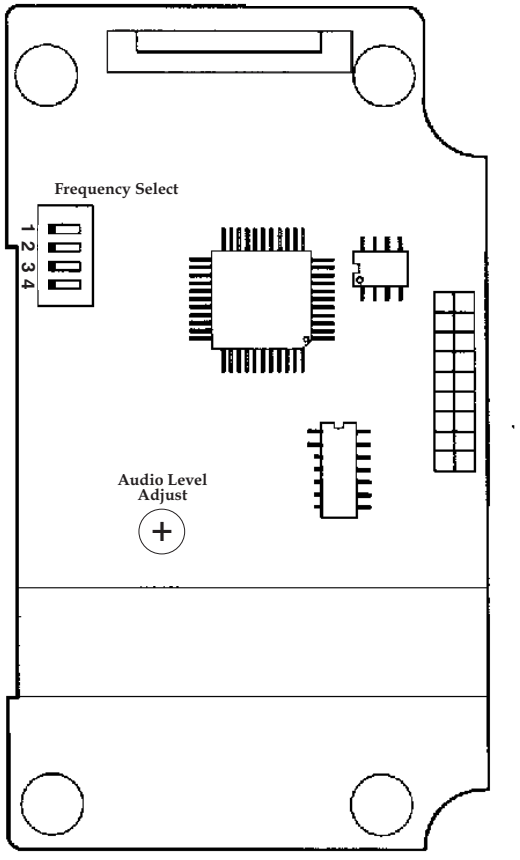
High Sierra Electronics
13355 Grass Valley Avenue
Grass Valley, CA 95945
Phone: (530) 273-2080
Fax: (530) 273-2089


REVISIONS
REV.
ECO#
DESCRIPTION
DATE
High Sierra Electronics
13355 Grass Valley Avenue, Grass Valley CA 95945
Phone: (530) 273-2080 Fax: (530) 273-2089
TITLE:
ALERT DATA RECEIVER / Maxon Radio
MODEL NO.: 4500
DRAWING NO.: 06-4500-02
REV.: C
APPROVED BY: GD
DATE: 9-11-00
DRAWN BY: Jeanie Alvey
FILE NAME: 61-4500-81
SHEET:
SCALE = DO NOT SCALE
AUDIO JACK
NC
GREEN
BROWN
BLACK
D1
GREEN LED POWER
R1
1K
RED
T1
12V +
GROUND
BLACK
SPEAKER
BLACK
YELLOW
GREEN
RECEIVER MAXON RADIO
ANTENNA
DATA
12V+
GROUND
RG58
ANTENNA BNC
SW1
SPEAKER SWITCH
UP: ON
DOWN: OFF

REVISIONS			
REV.	ECO#	DESCRIPTION	DATE



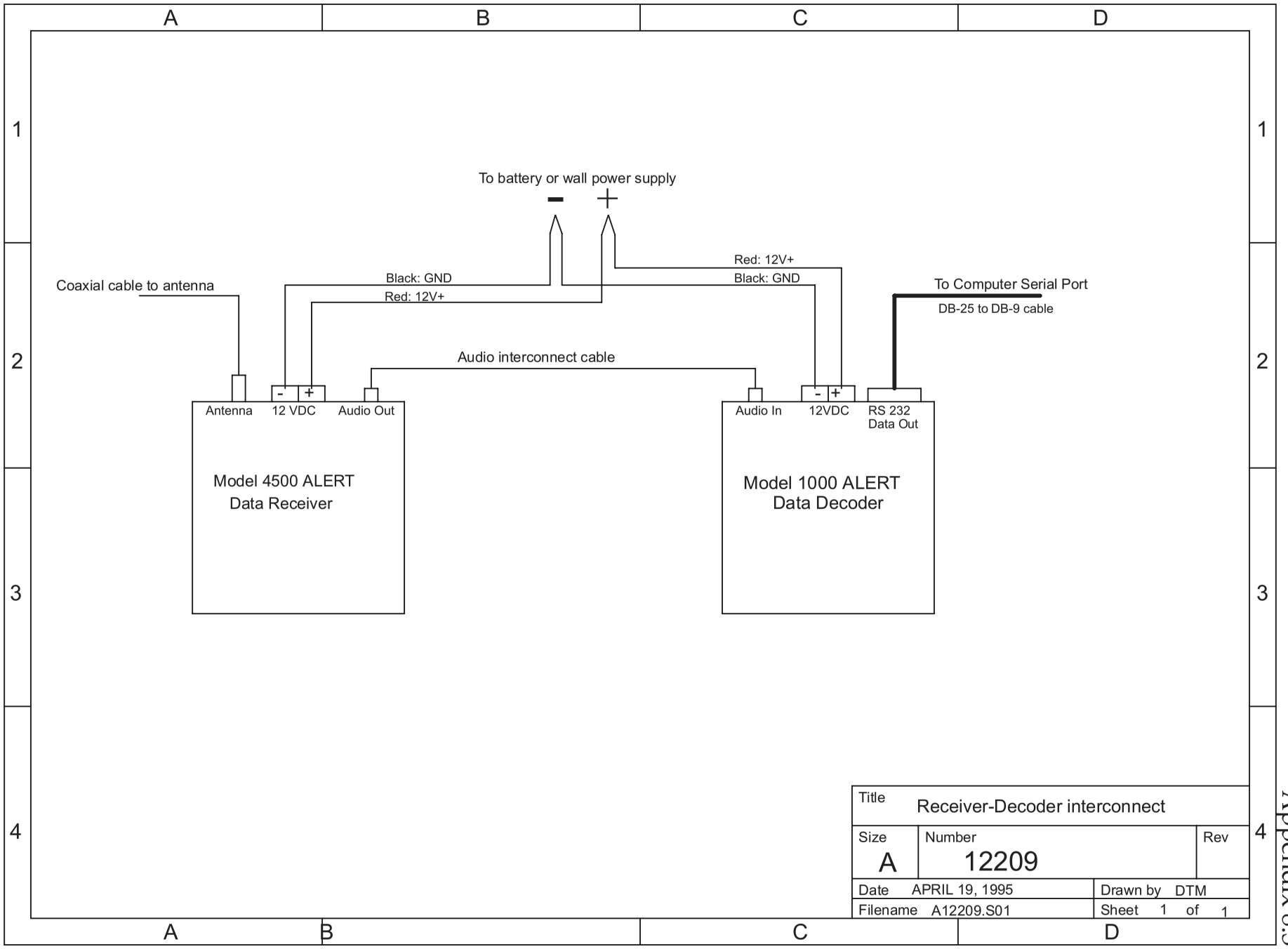
Channel Select Settings



Maxon Radio Top Board

High Sierra Electronics
13355 Grass Valley Avenue, Grass Valley CA 95945
Phone: (530) 273-2080 Fax: (530) 273-2089

TITLE: MAXON Radio Settings			
MODEL NO.: 4500	DRAWING NO.: 61-4500-82	REV.: C	APPROVED BY: GD
DATE: 4/19/04		DRAWN BY: JAB	
FILE NAME: 61-4500-82.pdf		SHEET:	SCALE = DO NOT SCALE


A
B
C
D
1
2
3
4
To battery or wall power supply
Coaxial cable to antenna
Black: GND
Red: 12V+
Red: 12V+
Black: GND
To Computer Serial Port
DB-25 to DB-9 cable
Audio interconnect cable
Antenna
12 VDC
Audio Out
Audio In
12VDC
RS 232
Data Out
Model 4500 ALERT
Data Receiver
Model 1000 ALERT
Data Decoder
Title
Receiver-Decoder interconnect
Size
A
Number
12209
Rev
Date
APRIL 19, 1995
Drawn by
DTM
Filename
A12209.S01
Sheet
1
of
1

Appendix 8.3